



Attorney Docket No. 22253-22 (O2740)

GP/1641.
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Lewis A. Chodosh, *et al.*

Application No.: 10/032,254

Group Art Unit: 1641

Filed: 12/21/2001

Title: Pregnancy Up-Regulated, Nonubiquitous CaM Kinase

Assistant Commissioner for Patents
Washington, DC 20231

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INFORMATION DISCLOSURE UNDER 37 CFR 1.97(b)

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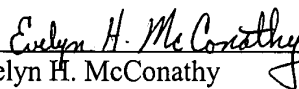
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Applicants' undersigned attorney may be reached by telephone at (215) 575-7034.

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Respectfully submitted,



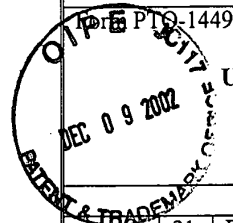
Evelyn H. McConathy
Registration No. 35,279

Date: December 4, 2002

DILWORTH PAXSON LLP
3200 Mellon Bank Center
1735 Market Street
Philadelphia, PA 19103-7595
Tel. (215) 575-7000
Fax (215) 575-7200

Sheet 1 of 8 Form PTO-1449 OFFICE OF THE COMMISSIONER OF PATENT & TRADEMARKS DEC 09 2002		U.S. Department of Commerce Date Filed: <u>December 4, 2002</u>		DOCKET NO. 22253-70422	APPLN. NO. 10/032,254
APPLICANT: Lewis A. Chodosh, et al.				FILING DATE: 12/21/2001	GROUP 1641
U.S. PATENT DOCUMENTS					
Examiner Initial		Document Number	Date	Name	Class
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)					
01	Aasheim, H. C., Terstappen, L. W., and Logtenberg, T. "Regulated expression of the Eph-related receptor tyrosine kinase Hek11 in early human B lymphopoiesis." <i>Blood</i> 90: 3613-3622 (1997).				
02	Adams, R. H., Wilkinson, G. A., Weiss, C., Diella, F., Gale, N. W., Deutsch, U., Risau, W., and Klein, R. "Roles of ephrinB ligands and EphB receptors in cardiovascular development: De-marcation of arterial/venous domains, vascular morphogenesis, and sprouting angiogenesis." <i>Genes Dev.</i> 13: 295-306 (1999).				
03	Adnane, J., Gaudray, P., Dionne, C. A., Crumley, G., Jaye, M., Schlessinger, J., Jeanteur, P., Birnbaum, D., and Theillet, C. "BEK and FLG, two receptors to members of the FGF family, are amplified in subsets of human breast cancers." <i>Oncogene</i> 6: 659-663 (1991).				
04	Andres, A.-C., Zuercher, G., Djonov, V., Flueck, M., and Ziemiecki, A. "Protein tyrosine kinase expression during the estrous cycle and carcinogenesis of the mammary gland." <i>Int. J. Cancer</i> 63: 288-296 (1995).				
05	Baitinger, C., Alderton, J., Poenie, M., Schulman, H., and Steinhardt, R. A. "Multi-functional Ca 21 /calmodulin-dependent protein kinase is necessary for nuclear envelope breakdown." <i>J. Cell Biol.</i> 111: 1763-1773 (1990).				
06	Bergemann, A. D., Zhang, L., Chiang, M. K., Brambilla, R., Klein, R., and Flanagan, J. G. "Ephrin-B3, a ligand for the receptor EphB3, expressed at the midline of the developing neural tube." <i>Oncogene</i> 16: 471-480 (1998).				
07	Birchmeier, C., Sonnenberg, E., Weidner, K. M., and Walter, B. "Tyrosine kinase receptors in the control of epithelial growth and morphogenesis during development." <i>BioEssays</i> 15: 185-190 (1993).				
08	Bolen, J. B. "Nonreceptor tyrosine protein kinases." <i>Oncogene</i> 8: 2025-2031 (1993).				
09	Bolen, J. B., Rowley, R. B., Spana, C., and Tsygankov, A. Y. "The Src family of tyrosine protein kinases in hemopoietic signal transduction." <i>FASEB J.</i> 6: 3403-3409 (1992).				
10	Braun, A. P., and Schulman, H. "The multifunctional calcium/calmodulin-dependent protein kinase: From form to function." <i>Annu. Rev. Physiol.</i> 57: 417-445 (1995).				
11	Brinkley, P. M., Class, K., Bolen, J. B., and Penhallow, R. C. "Structure and developmental regulation of the murine ctk gene." <i>Gene</i> 163: 179-184 (1995).				
12	Cance, W. G., Craven, R. J., Weiner, T. M., and Liu, E. T. "Novel protein kinases expressed in human breast cancer." <i>Int. J. Cancer</i> 54: 571-577 (1993).				
13	Cardiff, R. D., and Muller, W. J. "Transgenic mouse models of mammary tumorigenesis." <i>Cancer Surv.</i> 16: 97-113 (1993).				
14	Cardiff, R. D., Sinn, E., Muller, W., and Leder, P. "Transgenic oncogene mice. Tumor phenotype predicts genotype." <i>Am. J. Pathol.</i> 139: 495-501 (1991).				
15	Cawley, K. C., Akita, C. G., Angelos, K. L., and Walsh, D. A. "Characterization of the gene for rat phosphorylase kinase catalytic subunit." <i>J. Biol. Chem.</i> 268: 1194-1200 (1993).				
16	Centanni, J. M., de Miguel, M., Gopalan, G., Gilbert, D. J., Copeland, N. G., Jenkins, N. A., and Donovan, P. J. "Interleukin-1 receptor-associated kinase gene Il1rak maps to the mouse X chromosome." <i>Mamm. Genome</i> 9: 340-341 (1998).				
17	Cho, R. J., Campbell, M. J., Winzeler, E. A., Steinmetz, L., Conway, A., Wodicka, L., Wolfsberg, T. G., Gabrielian, A. E., Landsman, D., Lockhart, D. J., and Davis, R. W. "A genome-wide transcriptional analysis of the mitotic cell cycle." <i>Mol. Cell</i> 2: 65-73 (1998).				
18	Chodosh, L. A., D'Cruz, C. M., Gardner, H. P., Ha, S. I., Marquis, S. T., Rajan, J. V., Stairs, D. B., Wang, J. Y., and Wang, M. "Mammary gland development, reproductive history, and breast cancer risk." <i>Cancer Res.</i> 59: 1765-1771S (1999).				
19	Chodosh, L. A., Gardner, H. P., Rajan, J. V., Stairs, D. B., Marquis, S. T., and Leder, P. A. "Protein kinase expression during murine mammary development." <i>Dev. Biol.</i> 219: 259-276, (2000).				
20	Copeland, N. G., and Jenkins, N. A. "Development and applications of a molecular genetic linkage map of the mouse genome." <i>Trends Genet.</i> 7: 113-118 (1991).				
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OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)

21	Dickson, R. B., Salomon, D. S., and Lippman, M. E. "Tyrosine kinase receptor-nuclear protooncogene interactions in breast cancer." <i>Cancer Treatment Res.</i> 61: 249-273 (1992).
22	Dymecki, S. M., Niederhuber, J. E., and Desiderio, S. V. "Specific expression of a tyrosine kinase gene, blk, in B lymphoid cells." <i>Science</i> 247: 332-336 (1990).
23	Elson, A., and Leder, P. "Protein-tyrosine phosphatase epsilon. An isoform specifically expressed in mouse mammary tumors initiated by v-Ha-ras or neu." <i>J. Biol. Chem.</i> 270: 26116-26122 (1995).
24	Fantl, W. J., Johnson, D. E., and Williams, L. T. "Signalling by receptor tyrosine kinases." <i>Annu. Rev. Biochem.</i> 62: 453-481 (1993).
25	Ferrari, S., Manfredini, R., Tagliafico, E., Grande, A., Barbieri, D., Balestri, R., Pizzanelli, M., Zucchini, P., Citro, G., Zupi, G., et al. "Antiapoptotic effect of c-fes protooncogene during granulocytic differentiation." <i>Leukemia</i> 8: S91-94 (1994).
26	Fox, G. M., Holst, P. L., Chute, H. T., Lindberg, R. A., Janssen, A. M., Basu, R., and Welcher, A. A. "cDNA cloning and tissue distribution of five human EPH-like receptor protein-tyrosine kinases." <i>Oncogene</i> 10: 897-905 (1995).
27	Fukunaga, K., and Miyamoto, E. "Current studies on a working model of CaM kinase II in hippocampal long-term potentiation and memory." <i>Jpn. J. Pharmacol.</i> 79: 7-15 (1999).
28	Ganju, P., Walls, E., Brennan, J., and Reith, A. D. "Cloning and developmental expression of Nsk2, a novel receptor tyrosine kinase implicated in skeletal myogenesis." <i>Oncogene</i> 11: 281-290 (1995).
29	Gardner, H. P., Belka, G. K., Wertheim, G. B. W., Hartman, J. L., Ha, S. I., Marquis, S. T., and Chodosh, L. A. "Developmental role of the SNF-1-related kinase Hunk in pregnancy-induced changes in the mammary gland." <i>Development (Camb.)</i> in press (2000).
30	Gardner, H. P., Wertheim, G. B. W., Ha, S. I., Copeland, N. G., Gilbert, D. J., Jenkins, N. A., Marquis, S. T., and Chodosh, L. A. "Cloning and characterization of Hunk, a novel mammalian SNF1-related protein kinase." <i>Genomics</i> 63: 46-59 (2000).
31	Gardner, H., Rajan, J., Copeland, N., Gilbert, D., Jenkins, N., and Chodosh, L. "Cloning, characterization, and chromosomal localization of Pnck, a calcium/calmodulin-dependent protein kinase." <i>Genomics</i> in press (2000a).
32	Goldberg, J., Nairn, A. C., and Kuriyan, J. "Structural basis for the autoinhibition of calcium/calmodulin-dependent protein kinase I." <i>Cell</i> 84: 875-887 (1996).
33	Gruver, C. L., De Mayo, F., Goldstein, M. A., and Means, A. R. "Targeted developmental overexpression of calmodulin induces proliferative and hypertrophic growth of cardiomyocytes in transgenic mice." <i>Endocrinology</i> 133: 376-388 (1993).
34	Guy, C. T., Muthuswamy, S. K., Cardiff, R. D., Soriano, P., and Muller, W. J. "Activation of the c-Src tyrosine kinase is required for the induction of mammary tumors in transgenic mice." <i>Genes Dev.</i> 8: 23-32 (1994).
35	Guy, C. T., Webster, M. A., Schaller, M., Parsons, T. J., Cardiff, R. D., and Muller, W. J. "Expression of the c-neuprote-oncogene in the mammary epithelium of transgenic mice induces metastatic disease." <i>Proc. Natl. Acad. Sci. USA</i> 89: 10578-10582 (1992).
36	Hanissian, S. H., Frangakis, M., Bland, M. M., Jawahar, S., and Chatila, T. A. "Expression of a Ca 21 /calmodulin-dependent protein kinase, CaM kinase-Gr, in human T lymphocytes. Regulation of kinase activity by T cell receptor signaling." <i>J. Biol. Chem.</i> 268: 20055-20063 (1993).
37	Hanks, S. K., Quinn, A. M., and Hunter, T. "The protein kinase family: Conserved features and deduced phylogeny of the catalytic domains." <i>Science</i> 241: 42-52 (1988).
38	Hanks, S., and Quinn, A. "Protein kinase catalytic domain sequence database: Identification of conserved features of primary structure and classification of family members." <i>Methods Enzymol.</i> 200: 38-79 (1991).
39	Hanley, R. M., Means, A. R., Ono, T., Kemp, B. E., Burgin, K. E., Waxham, N., and Kelly, P. T. "Functional analysis of a complementary DNA for the 50-kilodalton subunit of calmodulin kinase II." <i>Science</i> 237: 293-297 (1987).
40	Hanson, P. I., and Schulman, H. "Neuronal Ca 21/calmodulin-dependent protein kinases." <i>Annu. Rev. Biochem.</i> 61: 559-601 (1992).

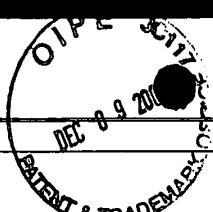
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OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)			
41	Hardie, D. G. "Roles of protein kinases and phosphatases in signal transduction." <i>Symp. Soc. Exp. Biol.</i> 44: 241-255 (1990).		
42	Haribabu, B., Hook, S. S., Selbert, M. A., Goldstein, E. G., Tomhave, E. D., Edelman, A. M., Snyderman, R., and Means, A. R. "Human calcium-calmodulin dependent protein kinase I: cDNA cloning, domain structure and activation by phosphorylation at threonine-177 by calcium-calmodulin dependent protein kinase I kinase." <i>EMBO J.</i> 14: 3679-3686 (1995).		
43	Herring, B. P., Stull, J. T., and Gallagher, P. J. "Domain characterization of rabbit skeletal muscle myosin light chain ki-nase." <i>J. Biol. Chem.</i> 265: 1724-1730 (1990).		
44	Itoh, N., Mima, T., and Mikawa, T. "Loss of fibroblast growth factor receptors is necessary for terminal differentiation of embryonic limb muscle." <i>Development</i> 122: 291-300 (1996).		
45	Jenkins, N. A., Copeland, N. G., Taylor, B. A., and Lee, B. K. "Organization, distribution, and stability of endogenous ecotropic murine leukemia virus DNA sequences in chromosomes of <i>Mus musculus</i> ." <i>J. Virol.</i> 43: 26 (1982).		
46	Jensen, K. F., Ohmstede, C. A., Fisher, R. S., and Sahyoun, N. "Nuclear and axonal localization of Ca21calmodulin-dependent protein kinase type Gr in rat cerebellar cortex." <i>Proc. Natl. Acad. Sci. USA</i> 88: 2850-2853 (1991b).		
47	Jensen, K. F., Ohmstede, C. A., Fisher, R. S., Olin, J. K., and Sahyoun, N. "Acquisition and loss of a neuronal Ca 21/calmodulin-dependent protein kinase during neuronal differentiation." <i>Proc. Natl. Acad. Sci. USA</i> 88: 4050-4053 (1991a).		
48	Jin, L., Fuchs, A., Schnitt, S. J., Yao, Y., Joseph, A., Lamszus, K., Park, M., Goldberg, I. D., and Rosen, E. M. "Expression of scatter factor and c-met receptor in benign and malignant breast tissue." <i>Cancer</i> 79: 749-760 (1997).		
49	Klijn, J., Berns, E., and Foekens, J. "Prognostic factors and response to therapy in breast cancer." In "Breast Cancer" (I. Fentiman and J. Taylor-Papadimitriou, Eds.) 18: 165-198. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. (1993).		
50	Kluppel, M., Donoviel, D. B., Brunkow, M. E., Motro, B., and Bernstein, A. "Embryonic and adult expression patterns of the Tec tyrosine kinase gene suggest a role in megakaryocytopoiesis, blood vessel development, and melanogenesis." <i>Cell Growth Differ.</i> 8: 1249-1256 (1997).		
51	Knight, S. J., Flannery, A. V., Hirst, M. C., Campbell, L., Christodoulou, Z., Phelps, S. R., Pointon, J., Middleton-Price, H. R., Barnicoat, A., Pembrey, M. E., et al. "Trinucleotide repeat amplification and hypermethylation of a CpG island in FRAXE mental retardation." <i>Cell</i> 74: 127-134 (1993).		
52	Knighton, D. R., Pearson, R. B., Sowadski, J. M., Means, A. R., Ten Eyck, L. F., Taylor, S. S., and Kemp, B. E. "Structural basis of the intrasteric regulation of myosin light chain kinases." <i>Science</i> 258: 130-135 (1992).		
53	Korobko, I. V., Kabishev, A. A., and Kiselev, S. L. "[Identification of the new protein kinase specifically transcribed in mouse tumors with high metastatic potential]." <i>Doklady Akad. Nauk</i> 354: 554-556 (1997).		
54	Kozak, M. "An analysis of 5'-noncoding sequences from 699 vertebrate messenger RNAs." <i>Nucleic Acids Res.</i> 15: 8125-8132 (1987).		
55	Kozak, M. "An analysis of vertebrate mRNA sequences: Intimations of translational control." <i>J. Cell Biol.</i> 115: 887-903 (1991).		
56	Krebs, J., Wilson, A., and Kisielow, P. "Calmodulin-dependent protein kinase IV during T-cell development." <i>Biochem. Biophys. Res. Commun.</i> 241: 383-389 (1997).		
57	Krull, C. E., Lansford, R., Gale, N. W., Collazo, A., Marcelle, C., Yancopoulos, G. D., Fraser, S. E., and Bronner-Fraser, M. "Interactions of Eph-related receptors and ligands confer rostrocaudal pattern to trunk neural crest migration." <i>Curr. Biol.</i> 7: 571-580 (1997).		
58	Kurioka, K., Nakagawa, K., Denda, K., Miyazawa, K., and Kitamura, N. "Molecular cloning and characterization of a novel protein serine/threonine kinase highly expressed in mouse embryo." <i>Biochim. Biophys. Acta</i> 1443: 275-284 (1998).		
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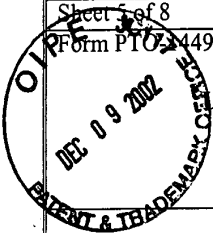
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OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)			
59	Lai, C., Gore, M., and Lemke, G. "Structure, expression, and activity of Tyro 3, a neural adhesion-related receptor tyrosine kinase." <i>Oncogene</i> 9: 2567-2578 (1994).		
60	Lambe, M., Hsieh, C.-C., Trichopoulos, D., Ekblom, A., Pavia, M., and Adami, H.-O. "Transient increase in the risk of breast cancer after giving birth." <i>N. Engl. J. Med.</i> 331: 5-9 (1994).		
61	Leder, A., Pattengale, P. K., Kuo, A., Stewart, T. A., and Leder, P. Consequences of widespread deregulation of the c-myc gene in transgenic mice: Multiple neoplasms and normal development." <i>Cell</i> 45: 485-495 (1986).		
62	Lee, K. S., Yuan, Y.-L. O., Kuriyama, R., and Erikson, R. L. "Plk is an M-phase-specific protein kinase and interacts with a kinesin-like protein, CHO1/MKLP-1." <i>Mol. Cell. Biol.</i> 15: 7143-7151 (1995).		
63	Lehtola, L., Partanen, J., Sistonen, L., Korhonen, J., Warri, A., Harkonen, P., Clarke, R., and Alitalo, K. "Analysis of tyrosine kinase mRNAs including four FGF receptor mRNAs expressed in MCF-7 breast cancer cells." <i>Int. J. Cancer</i> 50: 598-603 (1992).		
64	Li, J., Simpson, L., Takahashi, M., Miliareis, C., Myers, M. P., Tonks, N., and Parsons, R. "The PTEN/MMAC1 tumor suppressor induces cell death that is rescued by the AKT/protein kinase B oncogene." <i>Cancer Res.</i> 58: 5667-5672 (1998).		
65	Li, J., Yen, C., Liaw, D., Podsypanina, K., Bose, S., Wang, S. I., Puc, J., Miliareis, C., Rodgers, L., McCombie, R., Bigner, S. H., Giovanella, B. C., Ittmann, M., Tycko, B., Hibshoosh, H., Wigler, M. H., and Parsons, R. "PTEN, a putative protein tyrosine phosphatase gene mutated in human brain, breast, and prostate cancer [see comments]." <i>Science</i> 275: 1943-1947 (1997).		
66	Liang, T. J., Reid, A. E., Xavier, R., Cardiff, R. D., and Wang, T. C. "Transgenic expression of tpr-met oncogene leads to development of mammary hyperplasia and tumors." <i>J. Clin. Invest.</i> 97: 2872-2877 (1996).		
67	Liaw, D., Marsh, D. J., Li, J., Dahia, P. L., Wang, S. I., Zheng, Z., Bose, S., Call, K. M., Tsou, H. C., Peacocke, M., Eng, C., and Parsons, R. "Germline mutations of the PTEN gene in Cowden disease, an inherited breast and thyroid cancer syndrome." <i>Nat. Genet.</i> 16: 64-67 (1997).		
68	Ligos, J. M., Gerwin, N., Fernandez, P., Gutierrez-Ramos, J. C., and Bernad, A. "Cloning, expression analysis, and functional characterization of PKL12, a member of a new subfamily of Ser/Thr kinases." <i>Biochem. Biophys. Res. Commun.</i> 249: 380-384 (1998).		
69	Lin, C. R., Kapiloff, M. S., Durgerian, S., Tatemoto, K., Russo, A. F., Hanson, P., Schulman, H., and Rosenfeld, M. G. "Molecular cloning of a brain-specific calcium/calmodulin-dependent protein kinase." <i>Proc. Natl. Acad. Sci. USA</i> 84: 5962-5966 (1987).		
70	Lubs, H., Chiurazzi, P., Arena, J., Schwartz, C., Tranebjaerg, L., and Neri, G. "XLMR genes: Update 1998." <i>Am. J. Med. Genet.</i> 83: 237-247 (1999).		
71	Lukas, T., Mirzoeva, S., and Watterson, D. "Calmodulin-regulated protein kinases. In: L. Van Eldik and D. Watterson (eds.), <i>Calmodulin and signal transduction</i> ," San Diego: Academic Press 65-168 (1998).		
72	MacMahon, B., Cole, P., Lin, T. M., Lowe, C. R., Mirra, A. P., Ravnihar, B., Salber, E. J., Valaoras, V. G., and Yuasa, S. "Age at first birth and breast cancer risk." <i>Bull. WHO</i> 43: 209-221 (1970).		
73	MacMahon, B., Trichopoulos, D., Brown, J., Andersen, A. P., Aoki, K., Cole, P., DeWaard, F., Kaureniemi, T., Morgan, R. W., Purde, M., Ravnihar, B., Stormby, N., Westlund, K., and Woo, N.-C. "Age at menarche, probability of ovulation and breast cancer risk." <i>Int. J. Cancer</i> 29: 13-16 (1982).		
74	Maggiora, P., Marchio, S., Stella, M. C., Giai, M., Belfiore, A., DeBortoli, M., Di Renzo, M. F., Costantino, A., Sismondi, P., and Comoglio, P. M. "Overexpression of the RON gene in human breast carcinoma." <i>Oncogene</i> 16: 2927-2933 (1998).		
75	Manfredini, R., Balestri, R., Tagliafico, E., Trevisan, F., Pizzanelli, M., Grande, A., Barbieri, D., Zucchini, P., Citro, G., Franceschi, C., and Ferrari, S. "Antisense inhibition of c-fes proto-oncogene blocks PMA-induced macrophage differentiation in HL60 and in FDC-P1/MAC-11 cells." <i>Blood</i> 89: 135-145 (1997).		
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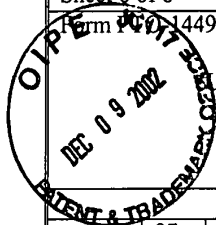
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76	Mano, H., Sato, K., Yazaki, Y., and Hirai, H. "Tec protein-tyrosine kinase directly associates with Lyn protein-tyrosine kinase through its N-terminal unique domain." <i>Oncogene</i> 9: 3205-3211 (1994).		
77	Mano, H., Yamashita, Y., Miyazato, A., Miura, Y., and Ozawa, K. "Tec protein-tyrosine kinase is an effector molecule of Lyn protein-tyrosine kinase." <i>FASEB J.</i> 10: 637-642 (1996).		
78	Marquis, S. T., Rajan, J. V., Wynshaw-Boris, A., Xu, J., Yin, G.-Y., Abel, K. J., Weber, B. L., and Chodosh, L. A. "The developmental pattern of Brca1 expression implies a role in differentiation of the breast and other tissues." <i>Nat. Genet.</i> 11: 17-26 (1995).		
79	Matthews, R. P., Guthrie, C. R., Wailes, L. M., Zhao, X., Means, A. R., and McKnight, G. S. "Calcium/calmodulin-dependent protein kinase types II and IV differentially regulate CREB-dependent gene expression." <i>Mol. Cell. Biol.</i> 14: 6107-6116 (1994).		
80	Medina, D., and Smith, G. H. "Chemical carcinogen-induced tumorigenesis in parous, involuted mouse mammary glands." <i>J. Natl. Cancer Inst.</i> 91: 967-969 (1999).		
81	Melbye, M., Wohlfahrt, J., Olsen, J. H., Frisch, M., Westergaard, T., Helweg-Larsen, K., and Andersen, P. K. "Induced abortion and the risk of breast cancer." <i>N. Engl. J. Med.</i> 336: 81-85 (1997).		
82	Michels, K., Hsieh, C., Trichopoulos, D., and Willett, W. "Abortion and breast cancer risk in seven countries." <i>Cancer Causes Control</i> 6: 75-82 (1995).		
83	Miyano, O., Kameshita, I., and Fujisawa, H. "Purification and characterization of a brain-specific multifunctional calmodulin-dependent protein kinase from rat cerebellum." <i>J. Biol. Chem.</i> 267: 1198-1203 (1992).		
84	Morrison, B. W., and Leder, P. "neu and ras initiate murine mammary tumors that share genetic markers generally absent in c-myc and int-2-initiated tumors." <i>Oncogene</i> 9: 3417-3426 (1994).		
85	Muller, W. J., Lee, F. S., Dickson, C., Peters, G., Pattengale, P., and Leder, P. "The int-2 gene product acts as an epithelial growth factor in transgenic mice." <i>EMBO J.</i> 9: 907-913 (1990).		
86	Muller, W. J., Sinn, E., Pattengale, P. K., Wallace, R., and Leder, P. "Single-step induction of mammary adenocarcinoma in transgenic mice bearing the activated c-neu oncogene." <i>Cell</i> 54: 105-115 (1988).		
87	Munn, R., Webster, M., Muller, W., and Cardiff, R. "Histopathology of transgenic mouse mammary tumors (a short atlas)." <i>Semin. Cancer Biol.</i> 6: 153-158 (1995).		
88	Nairn, A., and Piciotto, M. "Calcium/calmodulin-dependent protein kinases." <i>Semin. Cancer Biol.</i> 5: 295-303 (1994).		
89	Naito, Y., Watanabe, Y., Yokokura, H., Sugita, R., Nishio, M., and Hidaka, H. "Isoform-specific activation and structural diversity of calmodulin kinase." <i>I. J. Biol. Chem.</i> 272: 32704-32708 (1997).		
90	Nastluk, K., and Nairn, A. "Structure, regulation, and function of calcium/calmodulin-dependent protein kinase I." <i>Adv. Pharmacol.</i> 36: 251-275 (1996).		
91	Nelson, H. B., Heiman, R. G., Bolduc, C., Kovalick, G. E., Whitley, P., Stern, M., and Beckingham, K. "Calmodulin point mutations affect Drosophila development and behavior." <i>Genetics</i> 147: 1783-1798 (1997).		
92	Newcomb, P., Storer, B., Longnecker, M., Mittendorf, R., Greenberg, E., Clapp, R., Burke, K., Willett, W., and MacMahon, B. "Lactation and a reduced risk of premeno-pausal breast cancer." <i>N. Engl. J. Med.</i> 330: 81-87 (1994).		
93	Niemann, C., Brinkmann, V., Spitzer, E., Hartmann, G., Sachs, M., Naundorf, H., and Birchmeier, W. "Reconstitution of mammary gland development in vitro: requirement of c-met and c-erbB2 signaling for branching and alveolar morphogenesis." <i>J. Cell Biol.</i> 143: 533-545 (1998).		
94	Partanen, J., Armstrong, E., Makela, T. P., Korhonen, J., Sandberg, M., Renkonen, R., Knuutila, S., Huebner, K., and Alitalo, K. "A novel endothelial cell surface receptor tyrosine kinase with extracellular epidermal growth factor homology domains." <i>Mol. Cell. Biol.</i> 12: 1698-1707 (1992).		
95	Patel, R., Holt, M., Philipova, R., Moss, S., Schulman, H., Hidaka, H., and Whitaker, M. "Calcium/calmodulin-dependent phosphorylation and activation of human Cdc25-C at the G2/M phase transition in HeLa cells." <i>J. Biol. Chem.</i> 274: 7958-7968 (1999).		
96	Picciotto, M. R., Zoli, M., Bertuzzi, G., and Nairn, A. C. "Immunochemical localization of calcium/calmodulin-dependent protein kinase I." <i>Synapse</i> 20: 75-84 (1995).		
Examiner Signature:		Date Considered:	

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GROUP 1641

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)

97	Picciotto, M., Czernick, A., and Nairn, A. "Calcium/calmodulin-dependent protein kinase I. cDNA cloning and identification of autophosphorylation site." <i>J. Biol. Chem.</i> 268: 26512-26521 (1993).
98	Planas-Silva, M. D., and Means, A. R. "Expression of a constitutive form of calcium/calmodulin dependent protein kinase II leads to arrest of the cell cycle in G2." <i>EMBO J.</i> 11: 507-517 (1992).
99	Polishchuk, S. V., Brandt, N. R., Meyer, H. E., Varsanyi, M., and Heilmeyer, L. M., Jr. "Does phosphorylase kinase control glycogen biosynthesis in skeletal muscle?" <i>FEBS Lett.</i> 362: 271-275 (1995).
100	Quintrell, N., Lebo, R., Varmus, H., Bishop, J. M., Pettenati, M. J., LeBeau, M. M., Diaz, M. O., and Rowley, J. D. "Identification of a human gene (HCK) that encodes a protein-tyrosine kinase and is expressed in hemopoietic cells." <i>Mol. Cell. Biol.</i> 7: 2267-2275 (1987).
101	Rajan, J. V., Marquis, S. T., Gardner, H. P., and Chodosh, L. A. "Developmental expression of Brca2 colocalizes with Brca1 and is associated with differentiation in multiple tissues." <i>Dev. Biol.</i> 184: 385-401 (1997).
102	Rawlings, D. J., and Witte, O. N. "Bruton's tyrosine kinase is a key regulator in B-cell development." <i>Immunol. Rev.</i> 138: 105-119 (1994).
103	Robinson, G. W., McKnight, R. A., Smith, G. H., and Hennighausen, L. "Mammary epithelial cells undergo secretory differentiation in cycling virgins but require pregnancy for the establishment of terminal differentiation." <i>Development</i> 121: 2079-2090 (1995).
104	Russo, I. H., and Russo, J. "Developmental stage of the rat mammary gland as determinant of its susceptibility to 7,12-dimethylben(a)anthracene." <i>J. Natl. Cancer Inst.</i> 61: 1439-1449 (1978).
105	Russo, J., and Russo, I. H. "Biological and molecular bases of mammary carcinogenesis." <i>Lab. Invest.</i> 57: 112-137 (1987).
106	Russo, J., Tay, L. K., and Russo, I. H. "Differentiation of the mammary gland and susceptibility to carcinogenesis." <i>Breast Cancer Res. Treat.</i> , 2: 5-73 (1982).
107	Santoro, M. M., Collesi, C., Grisendi, S., Gaudino, G., and Comoglio, P. M. "Constitutive activation of the RON gene promotes invasive growth but not transformation." <i>Mol. Cell. Biol.</i> 16: 7072-7083 (1996).
108	Sato, K., Mano, H., Ariyama, T., Inazawa, J., Yazaki, Y., and Hirai, H. "Molecular cloning and analysis of the human Tec protein-tyrosine kinase." <i>Leukemia</i> 8: 1663-1672 (1994).
109	Sato, T. N., Qin, Y., Kozak, C. A., and Audus, K. L. "Tie-1 and tie-2 define another class of putative receptor tyrosine kinase genes expressed in early embryonic vascular system." <i>Proc. Natl. Acad. Sci. USA</i> 90: 9355-9358 (1993). [Published erratum appears in <i>Proc. Natl. Acad. Sci. USA</i> , 1993, 15, 12056]
110	Sato, T. N., Tozawa, Y., Deutsch, U., Wolburg-Buchholz, K., Fujiwara, Y., Gendron-Maguire, M., Gridley, T., Wolburg, H., Risau, W., and Qin, Y. "Distinct roles of the receptor tyrosine kinases Tie-1 and Tie-2 in blood vessel formation." <i>Nature</i> 376: 70-74 (1995).
111	Schulman, H. "The multifunctional Ca21/calmodulin-dependent protein kinases." <i>Curr. Opin. Cell Biol.</i> 5: 247-253 (1993).
112	Sheng, M., Thompson, M., and Greenberg, M. "CREB: A calcium-regulated transcription factor phosphorylated by calmodulin-dependent kinases." <i>Science</i> 252: 1427-1430 (1991).
113	Siliciano, J. D., Morrow, T. A., and Desiderio, S. V. "itk, a T-cell-specific tyrosine kinase gene inducible by interleukin 2." <i>Proc. Natl. Acad. Sci. USA</i> 89: 11194-11198 (1992).
114	Silva, A. J., Paylor, R., Wehner, J. M., and Tonegawa, S. "Impaired spatial learning in alpha-calcium-calmodulin kinase II mutant mice." <i>Science</i> 257: 206-211 (1992a).
115	Silva, A. J., Stevens, C. F., Tonegawa, S., and Wang, Y. "Deficient hippocampal long-term potentiation in alpha-calcium-calmodulin kinase II mutant mice." <i>Science</i> 257: 201-206 (1992b).
116	Sinn, E., Muller, W., Pattengale, P., Tepler, I., Wallace, R., and Leder, P. "Coexpression of MMTV/v-Ha-ras and MMTV/c-myc genes in transgenic mice: Synergistic action of oncogenes in vivo." <i>Cell</i> 49: 465-475 (1987).
117	Slamon, D. J., Clark, G. M., and Wong, S. G. "Human breast cancer: Correlation of relapse and survival with amplification of the HER-2/neu oncogene." <i>Science</i> 235: 177-182 (1987).

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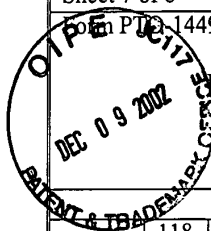
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GROUP 1641

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)

118	Slamon, D. J., Godolphin, W., Jones, L. A., Holt, J. A., Wong, S. G., Keith, D. E., Levin, W. J., Stuart, S. G., Udove, J., Ullrich, A., et al. "Studies of the HER-2/neu proto-oncogene in human breast and ovarian cancer." <i>Science</i> 244: 707-712 (1989).
119	Soderling, T. R. "Calcium/calmodulin-dependent protein kinase II: Role in learning and memory." <i>Mol. Cell. Biochem.</i> 127-128: 93-101 (1993).
120	Stairs, D. B., Gardner, H. P., Ha, S. I., Copeland, N. G., Gilbert, D. J., Jenkins, N. A., and Chodosh, L. A. "Cloning and characterization of Krct, a member of a novel subfamily of serine/threonine kinases." <i>Hum. Mol. Genet.</i> 7: 2157-2166 (1998).
121	Stambolic, V., Suzuki, A., de la Pompa, J. L., Brothers, G. M., Mirtsos, C., Sasaki, T., Ruland, J., Penninger, J. M., Siderovski, D. P., and Mak, T. W. "Negative regulation of PKB/Akt-dependent cell survival by the tumor suppressor PTEN." <i>Cell</i> 95: 29-39 (1998).
122	Steck, P. A., Pershouse, M. A., Jasser, S. A., Yung, W. K., Lin, H., Ligon, A. H., Langford, L. A., Baumgard, M. L., Hattier, T., Davis, T., Frye, C., Hu, R., Swedlund, B., Teng, D. H., and Tavtigian, S. V. "Identification of a candidate tumour suppressor gene, MMAC1, at chromosome 10q23.3 that is mutated in multiple advanced cancers." <i>Nat. Genet.</i> 15: 356-362 (1997).
123	Stitt, T. N., Conn, G., Gore, M., Lai, C., Bruno, J., Radziejewski, C., Mattsson, K., Fisher, J., Gies, D. R., Jones, P. F., et al. "The anticoagulation factor protein S and its relative, Gas6, are ligands for the Tyro 3/Axl family of receptor tyrosine kinases." <i>Cell</i> 80: 661-670 (1995).
124	Sun, P., Lou, L., and Maurer, R. "Regulation of activating transcription factor-1 and the cAMP response element-binding protein by Ca21/calmodulin-dependent protein kinases type I, II and IV." <i>J. Biol. Chem.</i> 271: 3066-3073 (1996).
125	Tamagnone, L., and Comoglio, P. M. "Control of invasive growth by hepatocyte growth factor (HGF) and related scatter factors." <i>Cytokine Growth Factor Rev.</i> 8: 129-142 (1997).
126	Taules, M., Rius, E., Talaya, D., Lopez-Girona, A., Bachs, O., and Agell, N. "Calmodulin is essential for cyclin-dependent kinase 4 (Cdk4) activity and nuclear accumulation of cyclin D1-Cdk4 during G1." <i>J. Biol. Chem.</i> 273: 33279-33286 (1998).
127	Tobimatsu, T., and Fujisawa, H. "Tissue-specific expression of four types of rat calmodulin-dependent protein kinase II mRNAs." <i>J. Biol. Chem.</i> 264: 17907-17912 (1989).
128	Tobimatsu, T., Kameshita, I., and Fujisawa, H. "Molecular cloning of the cDNA encoding the third polypeptide (gamma) of brain calmodulin-dependent protein kinase II." <i>J. Biol. Chem.</i> 263: 16082-16086 (1988).
129	Tokumitsu, H., Brickey, D. A., Glod, J., Hidaka, H., Sikela, J., and Soderling, T. R. "Activation mechanisms for Ca21/calmodulin-dependent protein kinase IV. Identification of a brain CaM-kinase IV kinase." <i>J. Biol. Chem.</i> 269: 28640-28647 (1994).
130	Tokumitsu, H., Enslen, H., and Soderling, T. R. "Characterization of a Ca 21/calmodulin-dependent protein kinase cascade. Molecular cloning and expression of calcium/ calmodulin-dependent protein kinase kinase." <i>J. Biol. Chem.</i> 270: 19320-19324 (1995).
131	Tsarfaty, I., Resau, J. H., Rulong, S., Keydar, I., Faletto, D. L., and Vande Woude, G. F. "The met proto-oncogene receptor and lumen formation." <i>Science</i> 257: 1258-1261 (1992).
132	Tsakada, S., Saffran, D. C., Rawlings, D. J., Parolini, O., Allen, R. C., Klisak, I., Sparkes, R. S., Kubagawa, H., Mohandas, T., Quan, S., et al. "Deficient expression of a B cell cytoplasmic tyrosine kinase in human X-linked agammaglobulinemia." <i>Cell</i> 72: 279-290 (1993).
133	Ugolini, F., Adelaide, J., Charafe-Jauffret, E., Nguyen, C., Jacquemier, J., Jordan, B., Birnbaum, D., and Pebusque, M. J. "Differential expression assay of chromosome arm 8p genes identifies Frizzled-related (FRP1/FRZB) and fibroblast growth factor receptor 1 (FGFR1) as candidate breast cancer genes." <i>Oncogene</i> 18: 1903-1910 (1999).
134	Umemori, H., Wanaka, A., Kato, H., Takeuchi, M., Tohyama, M., and Yamamoto, T. "Specific expressions of Fyn and Lyn, lymphocyte antigen receptor-associated tyrosine kinases, in the central nervous system." <i>Brain Res. Mol. Brain Res.</i> 16: 303-310 (1992).

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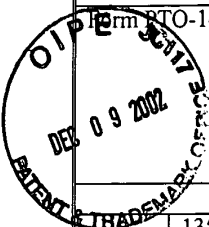
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OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.)

- | | |
|-----|--|
| 135 | Valenzuela, D. M., Rojas, E., Griffiths, J. A., Compton, D. L., Gisser, M., Ip, N. Y., Goldfarb, M., and Yancopoulos, G. D. "Identification of full-length and truncated forms of Ehk-3, a novel member of the Eph receptor tyrosine kinase family." <i>Oncogene</i> 10: 1573-1580 (1995a). |
| 136 | Valenzuela, D. M., Stitt, T. N., DiStefano, P. S., Rojas, E., Mattsson, K., Compton, D. L., Nunez, L., Park, J. S., Stark, J. L., Gies, D. R., et al. "Receptor tyrosine kinase specific for the skeletal muscle lineage: Expression in embryonic muscle, at the neuromuscular junction, and after injury." <i>Neuron</i> 15: 573-584 (1995b). |
| 137 | Wang, J., Moreira, K. M., Campos, B., Kaetzel, M. A., and Dedman, J. R. "Targeted neutralization of calmodulin in the nucleus blocks DNA synthesis and cell cycle progression." <i>Biochim. Biophys. Acta</i> 1313: 223-228 (1996). |
| 138 | Wang, M. H., Dlugosz, A. A., Sun, Y., Suda, T., Skeel, A., and Leonard, E. J. "Macrophage-stimulating protein induces proliferation and migration of murine keratinocytes." <i>Exp. Cell Res.</i> 226: 39-46 (1996). |
| 139 | Webster, N. J., Resnik, J. L., Reichart, D. B., Strauss, B., Haas, M., and Seely, B. L. "Repression of the insulin receptor promoter by the tumor suppressor gene product p53: A possible mechanism for receptor overexpression in breast cancer." <i>Cancer Res.</i> 56: 2781-2788 (1996). |
| 140 | Wilks, A. F. "Cloning members of protein-tyrosine kinase family using polymerase chain reaction." <i>Methods Enzymol.</i> 200: 533-546 (1991). |
| 141 | Wilks, A. F. "Two putative protein-tyrosine kinases identified by application of the polymerase chain reaction." <i>Proc. Natl. Acad. Sci. USA</i> 86: 1603-1607 (1989). |
| 142 | Wilks, A. F., Kurban, R. R., Hovens, C. M., and Ralph, S. J. "The application of the polymerase chain reaction to cloning members of the protein tyrosine kinase family." <i>Gene</i> 85: 67-74 (1989). |
| 143 | Williams, C. L., Phelps, S. H., and Porter, R. A. "Expression of Ca 21 /calmodulin-dependent protein kinase types II and IV, and reduced DNA synthesis due to the Ca 21 /calmodulin-dependent protein kinase inhibitor KN-62 (1-[N,O-bis(5-isoquino-linesulfonyl)-N-methyl-L-tyrosyl]-4-phenyl piperazine) in small cell lung carcinoma." <i>Biochem. Pharmacol.</i> 51: 707-715 (1996). |
| 144 | Wyllie, A. H., Arends, M. J., Morris, R. G., Walker, S. W., and Evan, G. "The apoptosis endonuclease and its regulation." <i>Semin. Immunol.</i> 4: 389-397 (1992). |
| 145 | Yi, T. L., Bolen, J. B., and Ihle, J. N. "Hematopoietic cells express two forms of lyn kinase differing by 21 amino acids in the amino terminus." <i>Mol. Cell. Biol.</i> 11: 2391-2398 (1991). |
| 146 | Yokokura, H., Picciotto, M. R., Nairn, A. C., and Hidaka, H. "The regulatory region of calcium/calmodulin-dependent protein kinase I contains closely associated autoinhibitory and calmodulin-binding domains." <i>J. Biol. Chem.</i> 270: 23851-23859 (1995). |
| 147 | Yokokura, H., Terada, O., Naito, Y., and Hidaka, H. "Isolation and comparison of rat cDNAs encoding Ca21/calmodulin-dependent protein kinase I isoforms." <i>Biochim. Biophys. Acta</i> 1338: 8-12 (1997). |
| 148 | Yu, G., Smithgall, T. E., and Glazer, R. I. "K562 leukemia cells transfected with the human c-fes gene acquire the ability to undergo myeloid differentiation." <i>J. Biol. Chem.</i> 264: 10276-10281 (1989). |
| 149 | Ziegler, S. F., Marth, J. D., Lewis, D. B., and Perlmutter, R. M. "Novel protein-tyrosine kinase gene (hck) preferentially expressed in cells of hematopoietic origin." <i>Mol. Cell. Biol.</i> 7: 2276-2285 (1987). |

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